

Claim 1 (Withdrawn): A metal thin film of a semiconductor device comprising:

a barrier metal layer formed on a semiconductor substrate; and

a PVD seed thin film, a CVD thin film, and a PVD reflow thin film sequentially formed on the barrier metal layer, wherein the PVD seed thin film, the CVD thin film and the PVD reflow thin film are of the same material.

Claim 2 (Withdrawn): The metal thin film of claim 1, the PVD seed thin film, the CVD thin film, and the PVD reflow thin film are of Al or Cu.

Claim 3 (Withdrawn): The metal thin film of claim 1, further comprising an interleaving insulating film between the semiconductor substrate and the PVD seed thin film.

Claim 4 (Withdrawn): The metal thin film of claim 1, wherein the barrier metal layer is of any one of Ti, TiN and Ti/TN.

Claim 5 (Withdrawn): The metal thin film of claim 1, further comprising an ARC layer of Ti/TiN on the PVD reflow thin film.

Claim 6 (Currently Amended): A method for forming a metal thin film of a semiconductor device comprising the steps of:

forming an interleaving insulating film on a semiconductor substrate and selectively etching the interleaving insulating film to form a contact hole;

forming a barrier metal layer on the interleaving insulating film including the contact hole;

forming a PVD seed thin film on the barrier metal layer;

forming a CVD thin film on the PVD seed thin film; and

forming a PVD reflow thin film on the CVD thin film to fill the contact hole and form a flat thin film on the interleaving insulating film,

wherein the PVD seed thin film and the CVD thin film are formed of the same material.

Claim 7 (Original): The method of claim 6, further comprising the step of cleaning an internal portion of the contact hole and a surface of the interleaving insulating film by cleaning process using plasma.

Claim 8 (Original): The method of claim 6, wherein the PVD seed thin film, the CVD thin film and the PVD reflow thin film are of the same material.

Claim 9 (Previously Presented): The method of claim 6, wherein the PVD seed thin film is formed of Al or Cu with a thickness of 2000Å or less at a temperature of 300°C or less and power of 5kW or greater.

Claim 10 (Previously Presented): The method of claim 6, wherein the CVD thin film is formed at a thickness of 1000Å or less, and in case where the CVD thin film is of Al, an organic compound, that includes one of dimethyl aluminum hydride (DMAH), $(\text{CH}_3)_2\text{AlH}$, dimethyl ethyl amine alane (DMEAA) and $\text{AlH}_3\text{N}(\text{CH}_3)_2(\text{C}_2\text{H}_5)$, and a first mixture material containing the organic metal compound is used as a precursor.

Claim 11 (Previously Presented): The method of claim 10, wherein the CVD thin film is formed at a deposition temperature of 150~300°C and a deposition pressure of 1~100Torr using a second mixture material in which adduct of a small amount is added to DMAH.

Claim 12 (Previously Presented): The method of claim 6, wherein the CVD thin film is formed at a thickness of 1000Å or less, and in case where the CVD thin film is of Cu, one of a Lewis-base stabilizing Cu(I)beta-diketonate and a second mixture material containing the Lewis-base stabilizing Cu(I)beta-diketonate is used a precursor.

Claim 13 (Previously Presented): The method of claim 12, wherein the CVD thin film is formed at a deposition temperature of 100~300°C and a deposition pressure of 1~100Torr using a third mixture material in which tmvs and Hhfac Dihydrate (HDH) are added to Cu(hfac)(tmvs) as a compound precursor.

Claim 14 (Previously Presented): The method of claim 6, wherein, in case where the CVD thin film is formed of Al, the barrier metal layer is formed of Ti, TiN, or a combination of Ti and TiN, where Ti is deposited by ionized PVD process and TiN is deposited by ionized PVD or CVD process.

Claim 15 (Previously Presented): The method of claim 6, wherein, in case where the CVD thin film is formed of Cu, the barrier metal layer is formed of either any of Ta, TaN, a combination of Ta and TaN, TiN, and a combination of Ti and TiN, or WN_x, where Ta and Ti are deposited by ionized PVD process while TaN, TiN and WN_x are deposited by ionized PVD or CVD process.

Claim 16 (Original): The method of claim 6, wherein the PVD reflow thin film has a thickness less than 50% of the final thickness of the completed thin films.

Claim 17 (Previously Presented): The method of claim 6, wherein the PVD reflow thin film is formed by a deposition process performed at a temperature of at least 300°C and one of a power of 5kW so as to perform a subsequent annealing process, and a sequence of a first power of 5kW or greater and a second power of 5kW or less.

Claim 18 (Previously Presented): The method of claim 6, further comprising an ARC layer of a combination of Ti and TiN on the PVD reflow thin film.